

REPRINT



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada  
  
Tel (613) 632-5200  
Fax 613 632-5246

**646.3811**  
**Job Sheet 190726**

**Part No:** 646.3811      **Job Qty:** 30 pcs

**Part Name:** Radius Block



**Part Weight:** 0 lbs

**Status:** New

**Priority:** Medium

**Job Created:** 2/13/19

**Job Tracking No:**

**Due Date:** 3/22/19

**Created By:** Marie Lajeunesse

**Type:** Stock

**Description:** SIOP

**Note:** DWG 646.3800 REV.A IPP REV:A NEW ISSUE 12-10-22 JLM VERIFIED:DD IPP REV:B 18.07.03 AS PER  
DWG REV.A DD VERF:JFS

**Ship Via:**

**Bill of Materials**

**Job Routing**

| Op<br>No | Operation   | Qty       | Start Date | Due<br>Date | Standard     |            | Workcenter/Supplier      |           | Sign-off     |
|----------|-------------|-----------|------------|-------------|--------------|------------|--------------------------|-----------|--------------|
|          |             |           |            |             | Setup<br>Hrs | Run<br>Hrs | Workcenter /<br>Supplier | Lead Time |              |
| 110      | HAAS 4 Axis | 30<br>pcs |            | 3/22/19     | 0.00         | 11.72      | HAAS - 1                 |           | DJP 19-07-04 |
|          |             |           |            |             |              |            | HAAS - 2                 |           |              |
|          |             |           |            |             |              |            | HAAS - 3                 |           |              |
|          |             |           |            |             |              |            | HAAS - 4                 |           |              |
| 120      | QC 2        | 30<br>pcs |            | 3/22/19     | 0.00         | 0.00       | QC 2 - 1                 |           |              |
|          |             |           |            |             |              |            | QC 2 - 12                |           |              |
|          |             |           |            |             |              |            | QC 2 - 14                |           |              |
|          |             |           |            |             |              |            | QC 2 - 17                |           |              |
|          |             |           |            |             |              |            | QC 2 - 19                |           |              |
|          |             |           |            |             |              |            | QC 2 - 2                 |           |              |
|          |             |           |            |             |              |            | QC 2 - 20                |           |              |
|          |             |           |            |             |              |            | QC 2 - 22                |           |              |
|          |             |           |            |             |              |            | QC 2 - 23                |           |              |
|          |             |           |            |             |              |            | QC 2 - 25                |           |              |
|          |             |           |            |             |              |            | QC 2 - 32                |           |              |
|          |             |           |            |             |              |            | QC 2 - 33                |           |              |
|          |             |           |            |             |              |            | QC 2 - 35                |           |              |
|          |             |           |            |             |              |            | QC 2 - 39                |           |              |
|          |             |           |            |             |              |            | QC 2 - 4                 |           |              |
|          |             |           |            |             |              |            | QC 2 - 40                |           |              |
|          |             |           |            |             |              |            | QC 2 - 44                |           |              |
|          |             |           |            |             |              |            | QC 2 - 45                |           |              |
|          |             |           |            |             |              |            | QC 2 - 48                |           |              |
|          |             |           |            |             |              |            | QC 2 - 49                |           |              |
|          |             |           |            |             |              |            | QC 2 - 50                |           |              |
|          |             |           |            |             |              |            | QC 2 - 51                |           |              |
|          |             |           |            |             |              |            | QC 2 - 52                |           |              |
|          |             |           |            |             |              |            | QC 2 - 54                |           |              |
|          |             |           |            |             |              |            | QC 2 - 56                |           |              |
|          |             |           |            |             |              |            | QC 2 - 57                |           |              |



**Container No:** S196042



**Part:** 646.3811

**Job No:** 190726

**Serial No/Batch:** S196042

**Revision:** A

**Inspector:**

**Exp Date:**

**Instructions:** Various STC's

**Date:** 07/04/19

Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
CANADA  
TEL.: 1 613 632-5200  
Email: sales@dartaero.com  
www.dartaerospace.com

DAS 73 9-89  
DJP 19-07-04

|                                            |           |         |           |                           |                                   |
|--------------------------------------------|-----------|---------|-----------|---------------------------|-----------------------------------|
| 130 QC 8                                   | 30<br>pcs | 3/22/19 | 0.00 0.00 | QC 2 - 62                 |                                   |
|                                            |           |         |           | QC 2 - 63                 |                                   |
|                                            |           |         |           | QC 2 - 8                  |                                   |
|                                            |           |         |           | QC 2 - 66                 |                                   |
|                                            |           |         |           | QC 2 - 64                 |                                   |
|                                            |           |         |           | QC 8 - 12                 | m/19/07/06                        |
|                                            |           |         |           | QC 8 - 14                 |                                   |
|                                            |           |         |           | QC 8 - 17                 |                                   |
|                                            |           |         |           | QC 8 - 20                 |                                   |
|                                            |           |         |           | QC 8 - 25                 |                                   |
|                                            |           |         |           | QC 8 - 3                  |                                   |
|                                            |           |         |           | QC 8 - 32                 |                                   |
|                                            |           |         |           | QC 8 - 33                 |                                   |
|                                            |           |         |           | QC 8 - 35                 |                                   |
|                                            |           |         |           | QC 8 - 39                 |                                   |
|                                            |           |         |           | QC 8 - 4                  |                                   |
|                                            |           |         |           | QC 8 - 44                 |                                   |
|                                            |           |         |           | QC 8 - 45                 |                                   |
|                                            |           |         |           | QC 8 - 49                 |                                   |
|                                            |           |         |           | QC 8 - 58                 |                                   |
|                                            |           |         |           | QC 8 - 8                  |                                   |
|                                            |           |         |           | QC 8 - 9                  |                                   |
|                                            |           |         |           | QC 8 - 68                 |                                   |
|                                            |           |         |           | QC 8 - 67                 |                                   |
|                                            |           |         |           | QC 8 - 1 (A)              |                                   |
|                                            |           |         |           | QC 8 - 47                 |                                   |
| 140 Outsource - 4 - Anodize                | 30<br>pcs | 3/22/19 |           | ATG001-VE                 | ULT002 <sup>5</sup> KH 2019-07-10 |
| 150 Packaging 2-1 - Receive -<br>B4B       | 30<br>pcs | 3/22/19 | 0.00 0.00 | Packaging 2 - 1 - B4B     | JUL 26 2019                       |
|                                            |           |         |           | Packaging 2 - 2 - B4B     |                                   |
|                                            |           |         |           | Packaging 2 - 3 - B4B     |                                   |
|                                            |           |         |           | Packaging 2 - 5 - B4B     |                                   |
|                                            |           |         |           | Packaging 2 - 4 - B4B     |                                   |
|                                            |           |         |           | Packaging 2 - 6 - B4B     |                                   |
|                                            |           |         |           | Packaging 2 - 7 - B4B     |                                   |
|                                            |           |         |           | Packaging 2 - 8 - B4B     |                                   |
|                                            |           |         |           | Packaging 2 - 9 - B4B     |                                   |
|                                            |           |         |           | Packaging 2 - 10 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 11 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 12 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 13 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 14 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 15 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 16 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 17 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 18 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 19 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 20 -<br>B4B |                                   |
|                                            |           |         |           | Packaging 2 - 21 -<br>B4B |                                   |
| Plex 7/3/19 10:44 AM DART.LAMARCHE.MATHIEU |           |         |           |                           |                                   |

|                                 |        |         |      |      |  |                        |      |
|---------------------------------|--------|---------|------|------|--|------------------------|------|
|                                 |        |         |      |      |  | Packaging 2 - 22 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 23 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 24 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 25 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 26 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 27 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 28 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 29 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 30 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 31 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 32 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 33 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 34 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 35 - B4B |      |
|                                 |        |         |      |      |  | Packaging 2 - 36 - B4B |      |
| 155 QC 5                        | 30 pcs | 3/22/19 | 0.00 | 0.00 |  | QC 5 - 10              |      |
|                                 |        |         |      |      |  | QC 5 - 12              |      |
|                                 |        |         |      |      |  | QC 5 - 17              |      |
|                                 |        |         |      |      |  | QC 5 - 18              |      |
|                                 |        |         |      |      |  | QC 5 - 19              | DAS  |
|                                 |        |         |      |      |  | QC 5 - 22              | 61   |
|                                 |        |         |      |      |  | QC 5 - 24              | 9-89 |
|                                 |        |         |      |      |  | QC 5 - 3               |      |
|                                 |        |         |      |      |  | QC 5 - 42              |      |
|                                 |        |         |      |      |  | QC 5 - 43              |      |
|                                 |        |         |      |      |  | QC 5 - 49              |      |
|                                 |        |         |      |      |  | QC 5 - 51              |      |
|                                 |        |         |      |      |  | QC 5 - 58              |      |
|                                 |        |         |      |      |  | QC 5 - 68              |      |
|                                 |        |         |      |      |  | QC 5 - 9               |      |
|                                 |        |         |      |      |  | QC 5 - 50              |      |
| 180 Packaging 3-1 - Stock - B4B | 30 pcs | 3/22/19 | 0.00 | 0.00 |  | Packaging 3 - 1 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 2 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 3 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 4 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 5 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 6 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 7 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 8 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 9 - B4B  |      |
|                                 |        |         |      |      |  | Packaging 3 - 10 - B4B |      |
|                                 |        |         |      |      |  | Packaging 3 - 11 - B4B |      |
|                                 |        |         |      |      |  | Packaging 3 - 12 - B4B |      |

|                |        |         |           |                        |            |
|----------------|--------|---------|-----------|------------------------|------------|
|                |        |         |           | Packaging 3 - 13 - B4B |            |
|                |        |         |           | Packaging 3 - 14 - B4B |            |
|                |        |         |           | Packaging 3 - 15 - B4B |            |
|                |        |         |           | Packaging 3 - 16 - B4B |            |
|                |        |         |           | Packaging 3 - 17 - B4B |            |
|                |        |         |           | Packaging 3 - 18 - B4B |            |
|                |        |         |           | Packaging 3 - 19 - B4B |            |
|                |        |         |           | Packaging 3 - 20 - B4B |            |
|                |        |         |           | Packaging 3 - 21 - B4B |            |
|                |        |         |           | Packaging 3 - 22 - B4B |            |
|                |        |         |           | Packaging 3 - 23 - B4B | PC CCK 105 |
|                |        |         |           | Packaging 3 - 24 - B4B |            |
|                |        |         |           | Packaging 3 - 25 - B4B |            |
|                |        |         |           | Packaging 3 - 26 - B4B |            |
|                |        |         |           | Packaging 3 - 27 - B4B |            |
|                |        |         |           | Packaging 3 - 28 - B4B |            |
|                |        |         |           | Packaging 3 - 29 - B4B |            |
|                |        |         |           | Packaging 3 - 30 - B4B |            |
|                |        |         |           | Packaging 3 - 31 - B4B |            |
|                |        |         |           | Packaging 3 - 32 - B4B |            |
|                |        |         |           | Packaging 3 - 33 - B4B |            |
|                |        |         |           | Packaging 3 - 34 - B4B |            |
|                |        |         |           | Packaging 3 - 35 - B4B |            |
|                |        |         |           | Packaging 3 - 36 - B4B |            |
| 190 QC 21 - SA | 30 pcs | 3/22/19 | 0.00 0.00 | QC 21 - SA - 21        | DAC        |
|                |        |         |           | QC 21 - SA - 70        | 21         |
|                |        |         |           | QC 21 - SA - 53        | 2-85       |

JUL 29 2019

Part Op 110 - (HAAS CNC Vertical Machine) 1-Machine per DWG

Descriptions: 120 - (QC2- Inspect parts off machine FAI/FAIB)

130 - (QC8- Inspect parts - second check)

ULLT002 140 - Issue P/O to ATG: 43963 AS PER MPP-172 SECTION 2.1, HARD ANODIZE COLOR BLACK, PER IAW MIL-A-8625 TYPE 3 CLASS 2 AS PER MPP-172 SECTION 4.3, PRIME CARDINAL 7760-4702 LOW VOC EPOXY

PRIMER (LIGHT GRAY) Certification of Conformity is required

150 - (Receive & Inspect for Damage & Mat'l Certs)

155 - (QC5- Inspect part completeness to step on W/O)

180 - (Identify as per dwg & Stock Location: \_\_\_\_\_) \*\*\*IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV\*\*\*

190 - (QC21- Final Inspection - Work Order Release)

STRP  
3.7  
MISSING

MAT  
used  
7.937

| Job BOM             |                             |                                        |                 |           |                  |
|---------------------|-----------------------------|----------------------------------------|-----------------|-----------|------------------|
| Part / Item         | Component Name              | Quantity                               | Operation       | Container |                  |
| M7075T6B1.000X0.250 | 7075-T6 Bar 1.000' X 0.250" | 4.2000 ft (.14 ea)<br>(7.935) (0.2645) | 110-HAAS 4 Axis | S158971   |                  |
| Job Allocations     |                             |                                        |                 |           |                  |
| Operation           | Component Part              | Required                               | Inventory       | Allocated |                  |
| 110-HAAS 4 Axis     | M7075T6B1.000X0.250         | 4                                      | 10              | 0         |                  |
| Part Specifications |                             |                                        |                 |           |                  |
| Spec No             | Description                 | Target/Tolerance                       | Limits          | Type      | Special Comments |
| 1                   | Radius Block                | 3.000Inches ± 0.010                    | 3.010<br>2.990  | 3.000     |                  |
| 2                   | Radius Block                | 0.810Inches ± 0.010                    | 0.820<br>0.800  | 0.811     |                  |
| 3                   | Radius Block                | 0.190Inches ± 0.010                    | 0.200<br>0.180  | 0.190     |                  |
| 4                   | Radius Block                | 0.190Inches ± 0.010                    | 0.200<br>0.180  | 0.190     |                  |

DAS  
73 19-07-04  
9-89

Plex 7/3/19 10:44 AM DART.LAMARCHE.MATHIEU





Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER

## POHB043963



**Supplier:** ULT002-VC  
Ultraspec Inc.  
2600 De Miniac  
St Laurent  
QC  
H4S 175 Canada  
Phone: 5143371782  
Fax: 5143371784

**PO No:** POHB043963

**PO Date:** 7/10/19

**Due Date:** 7/22/19

**Purchase Order**

**Revision:**

**Revision Date:**

**Ship-To Contact:** Guerin, Kimberley  
Phone: 613-632-5200 Ext: 298  
kguerin@dartaero.com

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Pymt Terms:** Net 30

**Freight Terms:** Prepaid

**Special Comments:**

**E-MAILED**  
2019-07-16

### Items

| Line Item | Job    | Part     | Description                                                                                                                                                                                                                                                                      | Status | Account | Due Date | Order Quantity | Received Quantity | Balance | Unit Price (CAD) | Extended Price |
|-----------|--------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------|-------------------|---------|------------------|----------------|
| 1         | 196376 | 646.3011 | RH Half<br>Various STC's<br>(Outsource process-Anodize per QSI017 4.1.10.1)<br>Issue P/O: _____<br>Hard Black Anodize, Color Black and Prime as Per Dwg 646.3000                                                                                                                 | Firmed | -       | 7/22/19  | 21 pcs         | 0 pcs             | 21 pcs  | \$43.34/pcs      | \$910.14       |
|           |        |          |                                                                                                                                                                                                                                                                                  |        |         |          | 21 x           | JUL 26 2019       |         |                  |                |
| 2         | 190726 | 646.3811 | Radius Block<br>Various STC's<br>Issue P/O: _____<br><br>AS PER MPP-172 SECTION 2.1,<br>HARD ANODIZE COLOR BLACK, PER IAW MIL-A-8825 TYPE 3 CLASS 2<br><br>AS PER MPP-172 SECTION 4.2,<br>PRIMER IAW MIL-PRF-23377 TYPE I CLASS N<br><br>Certification of Conformity is required | Firmed | -       | 7/22/19  | 30 pcs         | 0 pcs             | 30 pcs  | \$11.33/pcs      | \$339.90       |
|           |        |          |                                                                                                                                                                                                                                                                                  |        |         |          | 30 x           | JUL 26 2019       |         |                  |                |

**Grand Total:** \$1,250.04



Dart Aerospace Ltd.  
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Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**PURCHASE ORDER**  
**POHB043963**



**Order Notes**

**Procurement Quality Clauses**

A006 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable)

A022 Apical Processing

A024 process certifications

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an Integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 7/16/19 9:26 AM Dart.Guerin.Kimberley

**ULTRASPEC INC.**

Anodizing, Plating, Painting

2800 De Miniac, St-Laurent, QUEBEC, H4S1L7

Tel.: 514-337-1782

Fax.: 514-337-1784



0 4 7 0 9 9 - 1



Form No. 104, Rev. 10

**CERTIFICAT DE CONFORMITÉ / CERTIFICATE OF COMPLIANCE**  
**BON DE LIVRAISON / PACKING SLIP**  
**047099-1**

BUYER:

Client / Customer:

**DART AEROSPACE LTD**

1270 ABERDEEN ST.

HAWKESBURY, ON, K6A1K7

CANADA

Tel.: 613-632-5200 Fax.:

Livrer À / Ship To:

**DART AEROSPACE LTD**

1270 ABERDEEN ST.

HAWKESBURY, ON, K6A1K7

CANADA

Tel.: 613-632-5200 Fax.:

| Date        | Généré Par<br>Generated By                            | Packaging<br>Paquets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Vendor Code<br>Code Vendeur | Transport            | Customer PO / BC Client |
|-------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------|-------------------------|
| 25-Jul-2019 | Ruhan Anwar                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                             |                      | POHB043863              |
| #           | No de Serie / Part Number<br>Line Item Details        | Description/Information Additionnelle<br>Additional Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Commandée<br>Ordered        | Acceptée<br>Accepted | Rejetée<br>Rejected     |
| 1           | 646.3011 Rev.<br><br>MAT: 6061<br>Prog./Prime: /COMM. | <b>RH HALF</b><br>Job No./WO: 196376<br><br>HARD BLACK ANODIZE PER MIL-A-8625, REV. F1, TYPE III, CLASS 2 AND PER MPP-172, REV. F, SECTION 2.1<br>APPLY ONE COAT OF MIL-PRF-23377, REV. K, TYPE 1, CLASS N, PRIMER PER MPP-172, REV. F, SECTION 4.2<br>THICKNESS IS BETWEEN 1.0 - 1.5 MILS<br>(NOTE: WE USED THE PRIMER SUPPLIED BY DART AEROSPACE) AND ADHESION PROMOTER NOT APPLIED<br><br>CERTIFY PER MIL-A-8625_F1 EXCEPT THE WHEELS NOT DRESSED EACH 500 CYCLES WITHIN PERIODIC<br>ABRASION RESISTANCE TEST PER ASTM D4060-14 (ACTUALLY WHEELS DRESSED ONCE PER 10000 CYCLES)      | 21                          | 21                   | 0                       |
| 2           | 646.3811 Rev.<br><br>MAT: 6061<br>Prog./Prime: /COMM. | <b>RADIUS BLOCK</b><br>Job No./WO: 190726<br><br>HARD BLACK ANODIZE PER MIL-A-8625, REV. F1, TYPE III, CLASS 2 AND PER MPP-172, REV. F, SECTION 2.1<br>APPLY ONE COAT OF MIL-PRF-23377, REV. K, TYPE 1, CLASS N, PRIMER PER MPP-172, REV. F, SECTION 4.2<br>THICKNESS IS BETWEEN 1.0 - 1.5 MILS<br>(NOTE: WE USED THE PRIMER SUPPLIED BY DART AEROSPACE) AND ADHESION PROMOTER NOT APPLIED<br><br>CERTIFY PER MIL-A-8625_F1 EXCEPT THE WHEELS NOT DRESSED EACH 500 CYCLES WITHIN PERIODIC<br>ABRASION RESISTANCE TEST PER ASTM D4060-14 (ACTUALLY WHEELS DRESSED ONCE PER 10000 CYCLES) | 30                          | 30                   | 0                       |

**RECEIVED**

JUL 25 2019

**DART AEROSPACE LTD.**

**CERTIFICATE OF COMPLIANCE :** I certify that the parts included on this certificate have been processed as per specifications listed above and conform to all the requirements detailed in the contract or purchase order, this compliance is supported by a thorough inspection of parts and regular qualification of material processing facilities

Ultraspec Inc.

Authorized Signature :

Ruhan Anwar

Parts

Received by :

All claims with reference to this order must be made within 30 days from receipt of good.



THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF DART. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION OF DART INDUSTRIES OR DART AIRCRAFTS INCORPORATED.

NOTES:

1. PRIMARY MATERIAL: 7075-T651 ALUMINUM PER AMS-QQ-A-250/12.  
ALTERNATE MATERIAL: 7075-T651 ALUMINUM PER AMS-QQ-A-200/11.

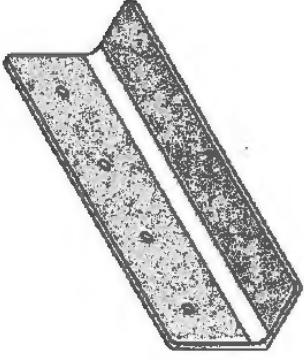
2. FINISH IN ACCORDANCE WITH MPP 172 SEC. 2.1, 3.3, 4.3

3. DEBURR AND BREAK ALL SHARP EDGES

4. IDENTIFY IAW MPP-120

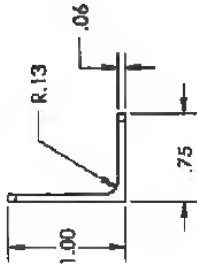
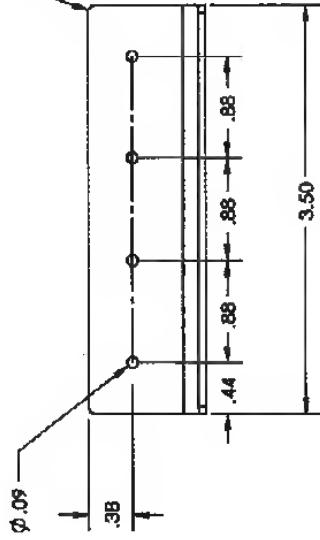
REVISIONS

| REV. | DESCRIPTION                   | DATE     | APPROVED |
|------|-------------------------------|----------|----------|
| NC   | INITIAL RELEASE               | 08/18/08 | P. BRAVO |
| A    | INCORPORATED ECN 03487, 05977 | 06/12/18 | P. BRAVO |



646.3810

R.06 TYP 4PL



| QTY | FIND # | PART #   | DESCRIPTION    | MAT'L | SPEC. |
|-----|--------|----------|----------------|-------|-------|
|     |        | 646.3814 | WIPER BRACKET  | AL    |       |
|     |        | 646.3813 | STRUT BRACKET  | AL    |       |
|     |        | 646.3812 | BUSSET BRACKET | AL    |       |
|     |        | 646.3811 | RADIUS BLOCK   | AL    |       |
|     |        | 646.3810 | BRACKET        | AL    |       |

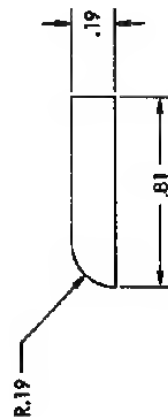
| QTY      | DESCRIPTION    | DATE     | APPROVED |
|----------|----------------|----------|----------|
| 646.4000 | WIPER BRACKET  | 08/18/08 | P. BRAVO |
| 646.4000 | STRUT BRACKET  | 08/18/08 | P. BRAVO |
| 646.4000 | BUSSET BRACKET | 08/18/08 | P. BRAVO |
| 646.4000 | RADIUS BLOCK   | 08/18/08 | P. BRAVO |
| 646.4000 | BRACKET        | 08/18/08 | P. BRAVO |

**DART**  
AIRCRAFTS  
INCORPORATED  
1725 E. 17TH AVE.  
DENVER, CO 80202  
(303) 754-3300  
FAX: (303) 754-3301  
WWW.DARTAIRCRAFTS.COM

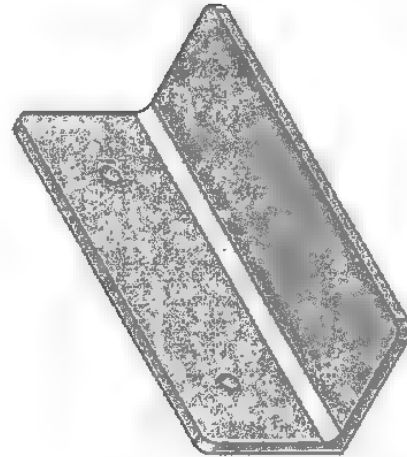
BRACKETS

| REV. | DESCRIPTION | DATE     | APPROVED |
|------|-------------|----------|----------|
| B    | 07/02/08    | 646.3800 | A        |
| C    | 07/02/08    | 646.3800 | A        |
| D    | 07/02/08    | 646.3800 | A        |
| E    | 07/02/08    | 646.3800 | A        |
| F    | 07/02/08    | 646.3800 | A        |
| G    | 07/02/08    | 646.3800 | A        |
| H    | 07/02/08    | 646.3800 | A        |
| I    | 07/02/08    | 646.3800 | A        |
| J    | 07/02/08    | 646.3800 | A        |
| K    | 07/02/08    | 646.3800 | A        |
| L    | 07/02/08    | 646.3800 | A        |
| M    | 07/02/08    | 646.3800 | A        |
| N    | 07/02/08    | 646.3800 | A        |
| O    | 07/02/08    | 646.3800 | A        |
| P    | 07/02/08    | 646.3800 | A        |
| Q    | 07/02/08    | 646.3800 | A        |
| R    | 07/02/08    | 646.3800 | A        |
| S    | 07/02/08    | 646.3800 | A        |
| T    | 07/02/08    | 646.3800 | A        |
| U    | 07/02/08    | 646.3800 | A        |
| V    | 07/02/08    | 646.3800 | A        |
| W    | 07/02/08    | 646.3800 | A        |
| X    | 07/02/08    | 646.3800 | A        |
| Y    | 07/02/08    | 646.3800 | A        |
| Z    | 07/02/08    | 646.3800 | A        |

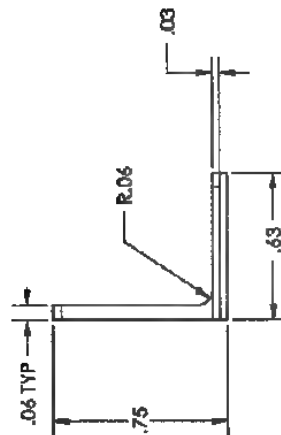
| Age Group | Percentage |
|-----------|------------|
| 18-24     | 15%        |
| 25-34     | 25%        |
| 35-44     | 30%        |
| 45-54     | 20%        |
| 55-64     | 10%        |
| 65-74     | 5%         |
| 75-84     | 2%         |
| 85+       | 1%         |

[illegible]

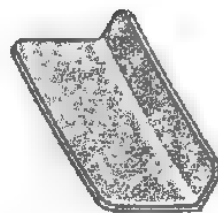
A vertical number line with tick marks at every integer from 1 to 8. The numbers 1, 2, 3, 4, 5, 6, 7, and 8 are labeled next to their respective tick marks.

[illegible]

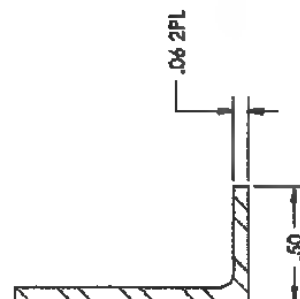
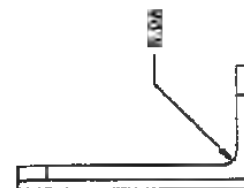
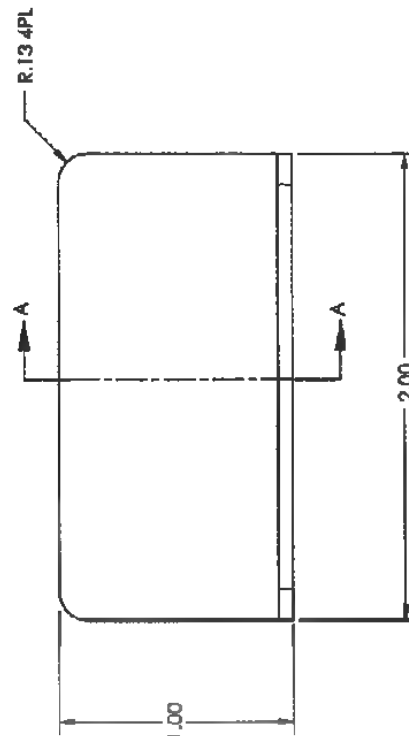
2 3 4 5 6 7 8

[illegible]

A vertical number line with tick marks labeled 2, 3, 4, 5, 6, 7, and 8.



**646.3814**



SECTION A-A

[illegible]





SUBJECT:  
WORK INSTRUCTION  
PAINT COATINGS

DOCUMENT NO:  
MPP-172  
Rev. F  
03/11/16

## 1.0 SCOPE

- A. This document defines the approved paint process(es) to be used in the preparation, priming, and top coatings of all applicable manufactured parts or products.
- B. MPP-186 Workmanship Standards Section 2.0 defines the visual acceptance criteria for painted parts and assemblies, as well as a Tape Test Procedure.

**NOTE:** Paint service provider, if required by customer flow-down requirements, shall be certified to perform specified standards and/or processes. See attached specification sheets for all detailed information regarding application processes.

## 2.0 ANODIZATION

- 2.1 HARD ANODIZE IAW MIL-A-8625 TYPE 3 CLASS 2, COLOR BLACK
- 2.2 HARD ANODIZE IAW MIL-A-8625 TYPE 2 CLASS 2, COLOR ALUM DYE BORDEAUX RL (RED)

## 3.0 PRETREATMENT

- 3.1 PRETREAT PR-148 ADHESION PROMOTER
  - FOR USE ON ALUMINUM PRODUCTS IN CONJUNCTION WITH PRIMER NOTED IN SECTION 4.2
- 3.2 PRETREAT CARDINAL 4860-52 ACID ETCH WASH PRIMER (GREEN)
  - FOR USE ON ALUMINUM, STEEL, AND STAINLESS STEEL PRODUCTS WITH PRIMER NOTED IN SECTION 4.3
- 3.3 PRETREAT CARDINAL 4860-4702 ACID ETCH WASH PRIMER (GRAY)
  - FOR USE ON ALUMINUM AND STAINLESS STEEL PRODUCTS WITH PRIMER NOTED IN SECTION 4.3

## 4.0 PRIMER

- 4.1 DESOTO 515X349 IAW BMS 10-79 TYPE III CLASS A GRADE A
- 4.2 PRIMER IAW MIL-PRF-23377 TYPE I CLASS N
- 4.3 PRIMER CARDINAL 7760-4702 LOW VOC EPOXY PRIMER (LIGHT GRAY)
  - FOR USE ON ALUMINUM, STEEL, AND STAINLESS STEEL PRODUCTS



SUBJECT:  
WORK INSTRUCTION  
PAINT COATINGS

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## 7760 PRIMER SERIES

Page 2

**SURFACE PREPARATION AND PRIMING:** The most important steps in a successful coating process are cleaning, pretreatment and priming. The following is a brief outline of some basics for unpainted substrates. It is not intended to be all-inclusive. For more information on your particular application contact Cardinal.

**Cleaning the substrate:** All surfaces to be coated, must be free of dirt, grease, oil, oxidation, mill scale, and all other contaminants. The surface must be thoroughly dry before painting. Air quality regulations have limited the allowable emissions from cleaning operations.

**Steel** — A phosphate chemical conversion coating is highly recommended. When this is not possible, a vinyl acid wash pretreatment primer is recommended such as Cardinal's 4800 series primers.

**Aluminum** — A chromic acid conversion coating is highly recommended. When this is not possible, a vinyl acid wash pretreatment primer is recommended such as Cardinal's 4800 series primers.

**Galvanized** — Cardinal's W-303-A surface preparation solution helps improve adhesion followed by a vinyl acid wash pretreatment primer such as Cardinal's 4800 series primers.

**Stainless Steel** — Brush-off or blast clean per SSPC-SP 7 to a uniform profile of 1.5 mils. Cardinal's W-303-A surface preparation solution can help improve adhesion followed by a vinyl acid wash pretreatment primer such as Cardinal's 4800 series primers.

### PRIMER SELECTION:

| PRODUCT NO. | DESCRIPTION                        | FUNCTION                             |
|-------------|------------------------------------|--------------------------------------|
| 4800 Series | Acid etching pre-treatment primers | Corrosion resistance, some surfacing |

### RELATED PRODUCTS:

| PRODUCT NO. | DESCRIPTION / FUNCTION                                                 |
|-------------|------------------------------------------------------------------------|
| HF-430      | Medium reducer                                                         |
| J-3081      | Surfactant. Helps eliminate blisters, bubbles, pin holes, solvent-pop. |
| 6400-Series | High Solids Polyurethane                                               |
| SB-32       | Medium Reducer                                                         |

### TROUBLE SHOOTING:

| PROBLEM                            | CAUSE                                                              | REMEDY                                                                                                                            |
|------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Blisters, pin holes or solvent pop | Water contamination.<br>Entrapped air.<br>Entrapped solvent        | Eliminate water — Check air lines. Use fresh catalyst. Use urethane grade thinners.<br>Increase atomization, decrease film build. |
| Craters                            | Contaminated ambient air, e.g., silicone mist, dust.               | Locate and eliminate source of contamination.                                                                                     |
| Fish-eyes                          | Substrate contamination.                                           | Clean and prepare substrate.                                                                                                      |
| Not drying                         | Alcohol in reducer.<br>Wrong catalyst ratio.                       | Use Cardinal's 1600 series or urethane grade reducers only.<br>Double check mix ratio.                                            |
| Poor adhesion                      | Improper surface preparation.                                      | See surface preparation section.                                                                                                  |
| Gloss variation                    | Variation in application, cure schedule, catalyst ratio, humidity. | Consistent gloss depends upon consistent process, e.g., air dried parts will not have same gloss as force dried parts.            |

### PRODUCT IDENTIFICATION

7760-4702 (example)  
7760 — Color number  
47 — Gloss: 0 - 5  
02 — Special: e.g., 2 = metallic; 5 = primer  
Product type

**APPLICATION EQUIPMENT:** Most air quality regulations require the paint application transfer efficiency to be 85% or better. This generally means using electrostatic or high volume low pressure (HVLP) spray guns. Otherwise, conventional pressure feed, airless or air assisted airless spray equipment can be used. Air supply lines need water and oil traps.

**EQUIPMENT CLEAN-UP:** Clean up should be done as soon as possible keeping in mind the pot life of the mixed paint. Avoid leaving catalyzed paint in the lines. Air quality regulations have limited the allowable emissions from cleaning operations.

### PRODUCT LIMITATIONS:

- 7760 is not recommended for outdoor exposure or UV radiation.
- Catalyst reacts with water. Air supply should be dry. Containers should be kept tightly closed. Use urethane grade thinners only.
- Alcohols and glycols interfere with curing chemistry and should be avoided. They can be found in some lacquer thinners and certain synthetic reducers.
- Optimum film properties are dependent upon proper mixing of paint and catalyst.

**SAFETY:** Refer to the product's Material Safety Data Sheet (MSDS) for complete safety information.

Contains organic solvents. Use with adequate ventilation. Do not breathe vapors or spray mists. If component TLVs are exceeded, a NIOSH approved air supplied respirator is advised. See MSDS for TLV information.

Contents are **FLAMMABLE**. Keep from heat, sparks or open flame.

Allergic reactions are possible. Avoid use by persons with respiratory problems.

Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

#### First Aid

Eye contact: flush immediately with plenty of water for at least 15 min. and get medical attention.

Skin contact: wash thoroughly with soap and water for 5 minutes.

If swallowed, do not induce vomiting and get medical attention immediately.

G12TL

## Kimberley Guerin

---

**From:** Linda Lacelle  
**Sent:** July 10, 2019 10:59 AM  
**To:** David Duval; Kimberley Guerin  
**Subject:** FW: parts delivered today

**From:** Pablo Bravo <pbravo@dartaero.com>  
**Sent:** Wednesday, December 20, 2017 5:16 PM  
**To:** Linda Lacelle <llacelle@dartaero.com>  
**Cc:** Jean-Luc Menard <jmenard@dartaero.com>; Chantal Lavoie <clavoie@dartaero.com>; Diane Baker <dbaker@dartaero.com>  
**Subject:** Re: parts delivered today

Linda,

Yes, it would be acceptable to use the Mil spec primer.

Pablo

On Dec 20, 2017, at 2:09 PM, Linda Lacelle <[llacelle@dartaero.com](mailto:llacelle@dartaero.com)> wrote:

sorry, but i need a reply on this today pls

Thx  
Linda

---

**From:** Linda Lacelle  
**Sent:** Wednesday, December 20, 2017 2:02:42 PM  
**To:** Pablo Bravo; Jean-Luc Menard  
**Cc:** 'Chantal ([clavoie@dartaero.com](mailto:clavoie@dartaero.com))'; Diane Baker  
**Subject:** FW: parts delivered today

Hi,  
We require the 647.7823 asap – this call for Cardinal 4860-4702 acid etch wash primer and pimer  
Cardinal 7760-4702 – can we not just anodize and use the usual PRF-23377 Type 1, Class N ???

Urgent pls...

Thx  
Linda

**From:** Marc-Andre Lalande [<mailto:Marc-Andre@atgindustries.com>]  
**Sent:** Wednesday, December 20, 2017 1:54 PM  
**To:** Linda Lacelle <[llacelle@dartaero.com](mailto:llacelle@dartaero.com)>

## Michael Lee

---

**From:** Kimberley Guerin  
**Sent:** July 29, 2019 11:49 AM  
**To:** Michael Lee  
**Subject:** FW: parts delivered today - Cardinal primer vs. PRF-23377

Hey Mike – this is the email trail between Linda & Pablo back in December 2017 where he approved to use the PRF-23377 in replace of the Cardinal primer.

Thanks,  
Kim

**From:** Linda Lacelle <[llacelle@dartaero.com](mailto:llacelle@dartaero.com)>  
**Sent:** July 10, 2019 10:59 AM  
**To:** David Duval <[dduval@dartaero.com](mailto:dduval@dartaero.com)>; Kimberley Guerin <[kguerin@dartaero.com](mailto:kguerin@dartaero.com)>  
**Subject:** FW: parts delivered today

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**Sent:** Wednesday, December 20, 2017 5:16 PM  
**To:** Linda Lacelle <[llacelle@dartaero.com](mailto:llacelle@dartaero.com)>  
**Cc:** Jean-Luc Menard <[jmenard@dartaero.com](mailto:jmenard@dartaero.com)>; Chantal Lavoie <[clavoie@dartaero.com](mailto:clavoie@dartaero.com)>; Diane Baker <[dbaker@dartaero.com](mailto:dbaker@dartaero.com)>  
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Linda

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**Cc:** 'Chantal ([clavoie@dartaero.com](mailto:clavoie@dartaero.com))'; Diane Baker  
**Subject:** FW: parts delivered today

Hi,

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Cardinal 7760-4702 – can we not just anodize and use the usual PRF-23377 Type 1, Class N ???

Urgent pls...

Thx  
Linda

**From:** Marc-Andre Lalande [<mailto:Marc-Andre@atgindustries.com>]  
**Sent:** Wednesday, December 20, 2017 1:54 PM  
**To:** Linda Lacelle <[llacelle@dartaero.com](mailto:llacelle@dartaero.com)>  
**Cc:** Chantal Lavoie <[clavoie@dartaero.com](mailto:clavoie@dartaero.com)>; Diane Baker <[dbaker@dartaero.com](mailto:dbaker@dartaero.com)>  
**Subject:** RE: parts delivered today

Bonjour,

Pour les 647.7823, Je ne peux pas les faire d'après le dessins. Il demande un spec que je peux pas faire.  
Pour les 3 autres pieces, ils sont en train de se faire.

Mais nous fermons vendredi midi donc vous allez pouvoir venir les chercher vendredi matin.

Merci!

**Marc-André Lalande**  
Finishing Dept. Manager  
A.T.G. Industries Inc.  
731, Industrielle Street  
Rockland, ON K4K 1T2  
( 613 ) 446-4544  
( 613 ) 446-4556 fax

**From:** Linda Lacelle [<mailto:llacelle@dartaero.com>]  
**Sent:** December-20-17 1:45 PM  
**To:** Marc-Andre Lalande <[Marc-Andre@atgindustries.com](mailto:Marc-Andre@atgindustries.com)>  
**Cc:** Chantal Lavoie <[clavoie@dartaero.com](mailto:clavoie@dartaero.com)>; Diane Baker <[dbaker@dartaero.com](mailto:dbaker@dartaero.com)>  
**Subject:** RE: parts delivered today

Bonjour Marc-Andre,  
Avez-vous de nouvelles pour nous svp?

Merci  
Linda

**From:** Linda Lacelle  
**Sent:** Tuesday, December 19, 2017 11:11 AM  
**To:** Marc-Andre - ATG <[Marc-Andre@atgindustries.com](mailto:Marc-Andre@atgindustries.com)>  
**Cc:** 'Chantal ([clavoie@dartaero.com](mailto:clavoie@dartaero.com))' <[clavoie@dartaero.com](mailto:clavoie@dartaero.com)>; Diane Baker <[dbaker@dartaero.com](mailto:dbaker@dartaero.com)>  
**Subject:** parts delivered today

Hi marc-Andre,  
I understand that Thursday is you last day... for the parts delivered today, we would require (IF POSSIBLE), the following before your shutdown:

649.4813  
646.3813  
647.7823  
646.3110

Please let me know if this can be done....

Thx  
Linda

---

This e-mail message has been scanned by **SEG Cloud**

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